

# Site Controller Unit

## PBT-PA-BMS-SC4



- Linux Operating System
- IPv4 and IPv6
- SNMP v1, v2c or v3
- FTP/SCP for firmware updates and log file access
- Optional WiFi with encryption and authentication
- SSL and SSH with encryption and authentication
- Supports up to 240 battery sensors on 6 ports in normal, combined, and split strings
- Support for wireless battery sensors
- Supports up to 8 RIMs, 8 ROMs, 6 FCSs, and 6 UGMs.
- Web server with encryption
- DNP3
- HVAC control via optional slave HVAC controller, or P-Bus devices
- Immediate, periodic, and discharge data logging
- Event, error, and debug message logging
- SNMP configuration via SSH or Web page
- Support for scripting and multiple web servers

The PBT SC4 site controller is a 4th generation design based on a secure and powerful Linux computer foundation. The unit is very small, has no moving parts, and can be powered from DC (battery or fuse panel) or from a local AC utility outlet. The unit has six physical (string) inputs, with a maximum of 40 batteries in any input (240 total jars per controller). The number of monitored strings can be increased via a virtualization mechanism that maps the 6 physical inputs into as many as 32 virtual strings. The number of batteries in a single string can be increased to 240 via another virtualization mechanism that maps multiple string inputs into a single large virtual string. The site controller has extensive, user-definable set-up capabilities, including labels for every monitored element, and user-defined alarm thresholds. The SC4 also monitors float charging current on each string, as well as ripple and discharge current, using current monitoring sensors made by PBT.

In addition to monitoring the battery plant, the SC4 also has 2 powered RS-485 interfaces that are used to interface with Remote Input Modules (RIMs) and Remote Output Modules (ROMs) made by PBT. RIMs and ROMs can be used to build very extensive and powerful monitoring solutions for generators or facilities monitoring. A USB interface is provided for low-level configuration of the unit. Three form-c relay outputs are provided for local alarm indications or for remote control of other equipment.

The SC4 has several interface mechanisms built-in, including an extensive configurable web server that displays site, string, and individual jar information, charge/discharge currents, RIM/ROM information and much, much more. A full SNMP (Simple Network Management Protocol) implementation allows any SNMP compliant management software to provision the system, collect data, process alarms and perform tests. An optional DNP3 monitoring interface is available.

Other hardware features include a 10/100 Ethernet interface, a +12VDC output for powering auxiliary interface devices, a plug-in flash memory drive for data logging and a very comprehensive set of LED indicators.

The SC4 is equipped with a very extensive logging system. Many years of logged data are maintained for periodic string/battery parameter measurements, discharge performance and system events such as alarms, errors, and user login attempts. All log entries are in CSV file format and all entries are date/time stamped. Log files can be downloaded remotely from the SC4 over the network, or locally by removing and reading the USB flash drive.

The SC4 is encased in a small, high-impact, flame retardant housing that fits in a 1RU rack height. A rack bracket that holds two SC4 units side-by-side is available.

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### General Specifications

	Present
Monitored battery string inputs	6 maximum; up to 32 strings with virtualization
Monitored batteries, each string	40 maximum
Monitored Batteries, all strings	240 jars/batteries; up to 240 jars per string
Parameters monitored (each string) float and discharge current will require optional sensor	String voltage, float current, ripple current, battery voltage delta, discharge status, discharge/load current with third party sensor (provided by Phoenix)
Parameters monitored (each battery)	Terminal post DC voltage, terminal post temperature, battery and cell admittance
Data logging	Stores event, periodic performance and discharge performance log files User defined interval for logging of all measured parameters
Programmable alarm thresholds	4 user-defined thresholds for each analog parameter: "High-High", "Low-High", "High-Low", "Low-Low"
Communications data interfaces	Internal SNMP proxy agent, internal web server, internal Telnet client, internal email client, proprietary 2x RJ-45 (P-Bus) * USB local programming and configuration serial interface, USB modem/GP serial port, six proprietary optically isolated serial sensor communications interfaces
Communications protocols	TCP/IP, UDP, SNMP, HTTP,HTTPS, SSL, SSH, SMTP, NTP, FTP, TLS
Packaging	Black ABS plastic 94VO
Options	Rack bracket; "wall-wart" power pack, cable kits. RIM, ROM, current sensors

### Electrical Specifications

Battery string interfaces (6 ea)	Proprietary bi-directional current loop signaling; Optically-isolated (1200V); short circuit protected
Battery sensor interconnection wiring	CAT-5e or CAT-6; 200 feet per 40 jar/battery string; 350 feet per 24 jar/ battery string
Local programming/configuration interface	USB
Ethernet interface	Magnetically coupled and isolated per industry standards
Input power	18 VDC to 65 VDC; 5W nominal; up to 15W max depending on load of auxiliary power output; ground isolated; fused
Auxiliary power output	12.5vdc nominal, .5amp max, short circuit protected
Digital output	Three programmable digital outputs which can be mapped to alarm thresholds forced to change states manually (via SNMP or web page)



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## PBT-PA-BMS-SC4

### Indicators & Connectors

Ethernet status indicators	2 front panel LEDs; 2 rear panel LEDs; link speed (10/100); network activity
Battery string activity/status indicators	1 bi-color LED per string interface; communications activity & status
Other indicators	1 bi-color LED per USB, 1 input power LED, 1 output power LED, 1 bi-color per P-Bus port
Ethernet connector	Industry standard
Battery string connectors (6 ea)	RJ-45
Local programming connector (1ea)	Type B USB
Logging memory connector (1 ea)	Type A USB
General purpose USB (1ea)	Type A USB
Power input connector	3-pin plug-in screw terminal block; supplied mating connector
Power output connector	2-terminal barrier block
P-Bus interface (2ea)	RJ-45 (For interfacing with RIM, ROM & current sensor modules)
Aux interface	RJ-45

### Mechanical Specifications

Size	8.1"W x 4.3"D x 1.65"H
Weight	1 lb
Housing material	Black ABS plastic (ABS 94 VO); UL file 56070

### Environmental Specifications

Operating temperature range	-30 deg C to +65 deg C
Relative humidity	0 to 90%, non-condensing



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